

IN THE CLAIMS

Please cancel claims 1-123 without prejudice or disclaimer. Please add the claims set forth below.

A-2 124. A process for preparing a medical implant having an improved balance of wear properties and oxidation resistance comprising the steps of:

Claim 1 irradiating a preform of ultrahigh molecular weight polyethylene to form free radicals;

annealing the irradiated preform by heating in a substantially oxygen-free atmosphere at a temperature above about 150°C, for a time sufficient to recombine substantially all of the free radicals and cross-link the ultrahigh molecular weight polyethylene;

6017 SK cooling the cross-linked preform while maintaining a substantially oxygen-free atmosphere;

forming a medical implant from the cross-linked preform;

packaging the medical implant in an air-permeable package; and

sterilizing the packaged implant using non-irradiative methods.

125. A process for preparing a medical implant having an improved balance of wear properties and oxidation resistance comprising the steps of:

irradiating a preform of ultrahigh molecular weight polyethylene to form free radicals;

annealing the irradiated preform by heating in a substantially oxygen-free atmosphere at a temperature above about 150°C, to cross-link the ultrahigh molecular weight polyethylene;

cooling the cross-linked preform while maintaining a substantially oxygen-free atmosphere;

forming a medical implant from the cross-linked preform.

126. A medical implant prepared according to the process of claim 124.

127. A medical implant prepared according to the process of claim 125.

128. A cross-linked ultrahigh molecular weight polyethylene having a swell ratio of less than about 5 and an oxidation level of less than about 0.2 carbonyl area/mil sample thickness after aging the ultrahigh molecular weight polyethylene at 70°C, for 14 days in oxygen at a pressure of about 5 atmospheres.

129. A medical implant comprising the ultrahigh molecular weight polyethylene of claim 128.

130. A process for preparing a medical implant having an improved balance of wear properties and oxidation resistance comprising the steps of:

irradiating a preform of ultrahigh molecular weight polyethylene to form free radicals;

annealing the irradiated preform by heating at a temperature above about 150°C, for a time sufficient to recombine substantially all of the free radicals and cross-link the ultrahigh molecular weight polyethylene;

cooling the cross-linked preform;

forming a medical implant from the cross-linked preform; ✓

packaging the medical implant in an air-permeable package; and

sterilizing the packaged implant using non-irradiative methods.